CT-PPS Quartic Geant4 simulation tool

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Contents

Chapter 1

Hierarchical Index

1.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Chapter 2

Class Index

2.1 Class List

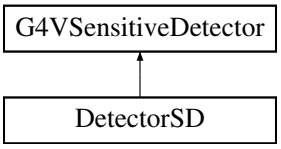
Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 3

Class Documentation

3.1 DetectorSD Class Reference

Inheritance diagram for DetectorSD:



Public Member Functions

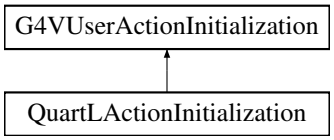
- **DetectorSD** (G4String)
- void **Initialize** (G4HCofThisEvent ∗)
- G4bool **ProcessHits** (G4Step ∗, G4TouchableHistory ∗)
- void **EndOfEvent** (G4HCofThisEvent ∗)

The documentation for this class was generated from the following file:

- include/DetectorSD.hh

3.2 QuartLActionInitialization Class Reference

Inheritance diagram for QuartLActionInitialization:



Public Member Functions

- virtual void **BuildForMaster** () const
- virtual void **Build** () const

The documentation for this class was generated from the following file:

- include/QuartLActionInitialization.hh

3.3 QuartLAnalyzer Class Reference

`#include <QuartLAnalyzer.hh>`

Public Member Functions

- QuartLAnalyzer (G4String filename="events.root")

  Default class constructor to book the TTree and its different leaves to store the information.
- void AddHitInEvent (G4Step *step)

  Add a new photon hit on the PMT in the events' collection.
- void FillTree ()

  Fills all branches in the TTree for one given event.
- void Store ()

  Store the TTree onto an external ROOT file.

3.3.1 Detailed Description

Analysis class intended to store into a TTree the photons kinematic information for each event.

3.3.2 Constructor & Destructor Documentation

3.3.2.1 QuartLAnalyzer::QuartLAnalyzer (G4String *filename* = `"events.root"`)

Default class constructor to book the TTree and its different leaves to store the information.

Parameters

in	*filename*	The file name to store the output tree.

3.3.3 Member Function Documentation

3.3.3.1 void QuartLAnalyzer::AddHitInEvent (G4Step * *step*)

Add a new photon hit on the PMT in the events' collection.

Parameters

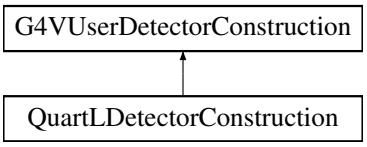
in	*step*	The Geant4 iterative step from which the photon kinematics is extracted.

The documentation for this class was generated from the following file:

- include/QuartLAnalyzer.hh

3.4 QuartLDetectorConstruction Class Reference

Inheritance diagram for QuartLDetectorConstruction:



Public Member Functions

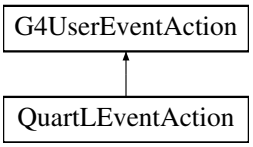
- G4VPhysicalVolume * **Construct** ()

The documentation for this class was generated from the following file:

- include/QuartLDetectorConstruction.hh

3.5 QuartLEventAction Class Reference

Inheritance diagram for QuartLEventAction:



Public Member Functions

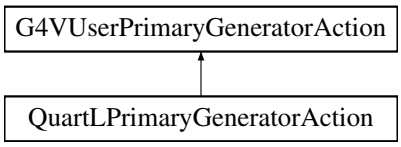
- void **BeginOfEventAction** (const G4Event *)
- void **EndOfEventAction** (const G4Event *)

The documentation for this class was generated from the following file:

- include/QuartLEventAction.hh

3.6 QuartLPrimaryGeneratorAction Class Reference

Inheritance diagram for QuartLPrimaryGeneratorAction:



Public Member Functions

- void **GeneratePrimaries** (G4Event *)
- void **SetOptPhotonPolar** ()
- void **SetOptPhotonPolar** (G4double)
- G4bool SetInputROOTFile (G4String)

3.6.1 Member Function Documentation

3.6.1.1 G4bool QuartLPrimaryGeneratorAction::SetInputROOTFile (G4String)

Sets the input ROOT file from which all simulated events are to be fetched in private attributes.

Parameters

in	*filename*	The ROOT file to open to fetch events

Returns

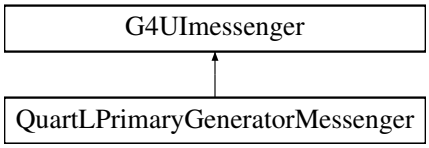
A boolean stating the success or failure of the TTree retrieval

The documentation for this class was generated from the following file:

- include/QuartLPrimaryGeneratorAction.hh

3.7 QuartLPrimaryGeneratorMessenger Class Reference

Inheritance diagram for QuartLPrimaryGeneratorMessenger:



Public Member Functions

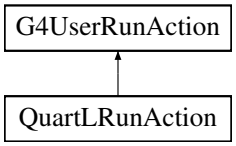
- **QuartLPrimaryGeneratorMessenger** (QuartLPrimaryGeneratorAction ∗)
- void **SetNewValue** (G4UIcommand ∗, G4String)

The documentation for this class was generated from the following file:

- include/QuartLPrimaryGeneratorMessenger.hh

3.8 QuartLRunAction Class Reference

Inheritance diagram for QuartLRunAction:



Public Member Functions

- **QuartLRunAction** (QuartLAnalyzer ∗analyzer=0)
- void **BeginOfRunAction** (const G4Run ∗aRun)
- void **EndOfRunAction** (const G4Run ∗aRun)

- QuartLAnalyzer * GetAnalyzer ()

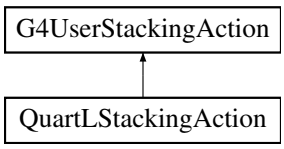
  Returns a pointer to the QuartLAnalyzer object used to collect all tracks' information in an external ROOT tree.

The documentation for this class was generated from the following file:

- include/QuartLRunAction.hh

3.9 QuartLStackingAction Class Reference

Inheritance diagram for QuartLStackingAction:



Public Member Functions

- G4ClassificationOfNewTrack ClassifyNewTrack (const G4Track *aTrack)

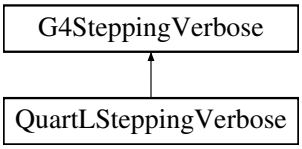
  Method to be run on every new track in the iterative tracking.
- void **NewStage** ()
- void **PrepareNewEvent** ()

The documentation for this class was generated from the following file:

- include/QuartLStackingAction.hh

3.10 QuartLSteppingVerbose Class Reference

Inheritance diagram for QuartLSteppingVerbose:



Public Member Functions

- void **StepInfo** ()
- void **TrackingStarted** ()

The documentation for this class was generated from the following file:

- include/QuartLSteppingVerbose.hh